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The research was directed to initiate a study of large-scale hereditary/non-hereditary control and distributed systems under randomly varying structural perturbations. Three principal areas of research, namely, (i.) stability, convergence, etc., (ii.) error lotimation between the stochastic and corresponding deterministic systems, (iii.)applications from various disciplines are investigated.

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FINAL REPORT:

The research was directed to initiate a study of large-scale hereditary/non-hereditary control and distributed computing systems under randomly varying structural perturbations. Three principal areas of research, namely

(1) stability, convergence, etc. (2) error estimation between the stochastic and corresponding deterministic systems. (3) applications from various disciplines are investigated.

The findings and reports under this study resulted in the following list of publications.

1. Title: Ito-type Systems of Stochastic Intego Differential Equations
   Authors: G. S. Ladde and S. Sathananthan.
   Journal: Integro Methods in Science and Engineering 90, Hemisphere Publishing Company, pg. 75-89, 1990.

2. Title: Error Estimates and Stability of Ito-type Systems of Nonlinear Stochastic Integal Differential Equations
   Authors: G. S. Ladde and S. Sathananthan
   Journal: Applicable Analysis, Vol. 43, pp. 163-189, 1992.

3. Title: On Multiline Method and the Rate of Convergence for a Class of Singularly Perturbed Stochastic Systems
   Authors: J. Golec and G. S. Ladde
   Journal: Journal of Mathematical Systems Estimation, and Control, Vol. 2, pp. 245-262, 1992.

4. Title: Comparison Theorerm and its Applications.
   Authors: G. S. Ladde, M. Sambandham, and S. Sathananthan
   Journal: International Series of Numerical Mathematics, Vol. 103, pp. 321-342, 1992.

5. Title: On an Approximation Method for a Class of Stochastic Singularly Perturbed Systems.
   Authors: J. Golec and G. S. Ladde
   Journal: Dynamic Systems and Application (In Press)

6. Title: Stability of Lotka - Volterra Model
   Authors: G. S. Ladde and S. Sathananthan
   Journal: Mathematics and Computer Modelling, Vol. 16, No. 3, pp. 99-107, 1992.